



**SPECIAL PROVISIONS
FOR
LIGHTING**

**Scott County
IM-NHS-074-1(197)5--03-82**

**Effective Date
April 25, 2017**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150176.01 DESCRIPTION.

Furnish all work, apparatus, and materials according to the applicable portions of Section 2523 of the Standard Specifications, unless as modified herein.

A. General.

1. Definitions.

- Pole Supply Contractor: Supplier of the roadway and pedestrian lighting poles.
- Luminaire Supply Contractor: Supplier of roadway, underpass, and pedestrian LED luminaires.
- Aesthetic Luminaire Supply Contractor: Supplier of aesthetic LED luminaires and aesthetic lighting data hub.

2. Work Under Separate Contract.

- Poles will be furnished and delivered by others.
- Luminaires will be furnished and delivered by others.
- Aesthetic Luminaires and aesthetic lighting data hubs will be furnished and delivered by others.

150176.02 MATERIALS.

A. Light Poles.

1. Delivery, Storage, and Handling.

Supply the Engineer with a required delivery schedule for the lighting poles within 6 weeks of contract award. Supply the delivery schedule to the pole supply contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the pole supply contractor.

- a. Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided at no additional cost to the contract.
- b. A minimum of ten light poles per delivery is required.
- c. The light poles shall be stored in such a manner as to prevent staining, discoloration, or other damage.

2. Inspection and Acceptance

Examine and document the condition of the lighting poles, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for the condition of the light pole as well as any repairs or replacements required due to any change in condition caused by site handling, storage, and installation. All repairs are subject to approval by the Engineer.

- a. Remove and replace damaged light poles if repairs do not comply with requirements.
- b. Clean exposed surfaces of the light poles after installation to remove dirt, stains, and other markings.
- c. Do not use cleaning materials or processes that could change the appearance of exposed finishes.

B. Luminaires.

1. Delivery, Storage, and Handling

Supply the Engineer with a required delivery schedule for the Roadway Luminaires within 6 weeks of contract award. Supply the delivery schedule to the luminaire supply contractor and the aesthetic luminaire supply contractor upon approval. It shall be the responsibility of the Contractor to coordinate delivery with the supply contractors.

- a. Delivery should be coordinated as to minimize handling and on-site storage requirements. If required, storage at the project site shall be provided by the Contractor at no additional cost to the contract.
- b. A minimum of 20 luminaires per delivery is required.
- c. The luminaires shall be stored in such a manner as to prevent damage.
- d. Obtain and follow the manufacturer's recommendations for the handling and installation of the luminaires.

2. Inspection and Acceptance

Examine and document the condition of the luminaires, in the presence of the Engineer, before accepting delivery. The Contractor shall be held responsible for fully functional luminaires as well as any repairs or replacements required due to any change in condition caused by site handling, storage, and installation. All repairs are subject to approval by the Engineer.

- a. Remove and replace damaged luminaires if repairs do not comply with requirements.
- b. Clean exposed surfaces of the luminaires after installation to remove dirt, stains, and other markings.
- c. Do not use cleaning materials or processes that could change the appearance of exposed finishes.

C. Navigation Lighting.

1. The navigation lights shall be factory assembled units which are specifically designed for use in marking navigable channels in accordance with the U.S. Coast Guard requirements which include Title 33 "Navigation and Navigable Waters." Part 118 "Bridge Lighting and Other Signals" of the Code of Federal Regulations (33CFR 118).
2. Provide all lighting fixtures, conduit, wire, cable, batteries, junction boxes, and miscellaneous items required to maintain the permanent and temporary navigation lighting systems.

3. Astragals shall be stainless steel and shall be angled across the fresnel lens. Vertical astragals will not be allowed, and all-thread rods will not be allowed for use as astragals.
4. The pivot type mounting assembly shall be bronze and shall be mounted on an external vibration isolator. The pivot assembly shall include a greased bearing with a grease fitting installed near the counterweight such that the bearing can be lubricated from the bridge deck. An aluminum or stainless steel extension tube shall run from the grease fitting to the bearing. A vandal-resistant locking rod assembly made of aluminum or stainless steel shall secure the luminaire in operating position. Stainless steel pipes shall be used to attach the pivot assembly to both the luminaire housing and the counterweights. A stainless steel locknut shall be used at all threaded connections to the pipes. The pivot assembly shall also include a galvanized or stainless steel counterweight to allow the fixture to be easily pulled in to the maintenance position.
5. Navigation obstruction warning luminaire housing shall be bronze. Nuts, bolts, thumb screws, hardware, thread rods, and mounting bases which are exterior, shall be stainless steel (300 series) or bronze. Hardware on the interior of the lamp cavity shall be stainless steel or bronze. The entire assembly shall have a minimum 10 year warranty against corrosion of any kind.
6. The LED navigation luminaire shall have a standard medium base socket and operate on a 120 V circuit (line to neutral). The color of the LED array shall match that of the fresnel lens. Lamps shall consist of a 120 V LED array which provides an output of approximately 840 candelas (similar to a 75 watt incandescent lamp). The navigation light shall be visible for a distance of one nautical mile 90% of the nights for a period of no less than 10 years. An indicator shall become active when the luminaire no longer meets U.S. Coast Guard visibility requirements due to lumen depreciation. Surge protection shall be provided for the luminaire and it shall be integral to the fixture housing.
7. Stainless steel hook and ring shall be attached to the bridge railing with stainless steel hardware or shall be anchored in the parapet. The service chain shall be stainless steel.

150176.03 CONSTRUCTION.

A. Light Poles.

1. Each light pole shall be assembled and installed upon its foundation in accordance with the manufacturer's recommendations. Prior to installation, the pole and all its components shall be inspected by the contractor, in the presence of the Engineer. Any parts found to be defective shall be repaired or replaced.
2. The pole shall be set plumb on the foundation and fastened to the anchor bolts with self-locking nuts or double nuts (two per anchor bolt) and washers. Flat washers shall be installed below and above the isolation washer. A 1/2 inch minimum isolation pad and a 1/2 inch minimum leveling pad shall be installed between the light pole base plate and the bottom nut (leveling nut) with a steel washer between the leveling nut and the leveling plate. The nuts shall be tightened in compliance with torque specifications recommended by the manufacturer of the isolation pad. See plans for attachment detail.
3. The space between the finished top of the foundation and the bottom of the base plate of the pole shall be enclosed with an expanded metal screen made of stainless steel. The mesh of the screen shall be 0.250 inch or less as approved by the Engineer. The screen shall be held in place with bands made of stainless steel. At least two bands shall be installed around the pole base plate. The bands shall be held tight by a ratchet-type device. Grouting shall not be used to enclose the above described space.

4. The anchor bolts shall be included with the concrete barrier railing.

B. Luminaires.

1. Install all components and accessories furnished with each luminaire including all electrical components, and wiring.
2. Each luminaire shall be mounted as indicated and as required for permanent lighting installation.
3. Unless otherwise indicated, each luminaire shall be set in a plane parallel to the roadway.
4. The installation shall be complete with fusing and connection to the applicable lighting feeder circuits.

C. Navigation Lighting.

The navigation lighting system (both temporary and permanent) shall be coordinated with the US Coast Guard.

1. As soon as any obstruction is placed over, or within, the navigation channel, provide temporary navigation lighting, visible from both upstream and downstream, in accordance with the U.S. Coast Guard requirements. The Contractor is responsible for developing the details of such as system, installation, powering, monitoring, and removal.
2. After the installation of the permanent navigation lighting over the river is completed and its operation is confirmed, all temporary navigation lighting details shall be removed.
3. Mounting of the luminaire shall be as recommended by the luminaire manufacturer in such a manner that they clear all obstacles when retrieved for maintenance and relamping.
4. Cable and wire, including connector assemblies as required, shall be installed in accordance with Articles 2523.03, Q and P of the Standard Specifications.
5. Final acceptance of the Navigation Lighting shall be per Article 2523.03, U of the Standard Specifications and in writing by the US Coast Guard.

150176.04 METHOD OF MEASUREMENT.

A. Light Poles.

The Light Pole will be measured by the unit each, complete for each of the items listed below. All related apparatus shall be included.

- Lighting Pole, Install Only
- Pedestrian Pole, Install Only

B. Luminaires.

The Luminaires will be measured by the unit each, complete for each of the items listed below. All related apparatus shall be included.

- Pedestrian Luminaire, Install Only
- Roadway Luminaire, Install Only
- Aesthetic Light, Install Only (Type LC)
- Aesthetic Light, Install Only (Type LD)

C. Navigation Lighting.

Lump sum. No method of measurement.

150176.05 BASIS OF PAYMENT.**A. Light Poles.**

This work shall be paid for at the contract unit price each for the items listed below, of the type, mounting height and luminaire mounting positions indicated, which shall be payment in full for installing the light pole complete as described in these specifications.

- Lighting Pole, Install Only
- Pedestrian Pole, Install Only

B. Luminaires.

This work will be paid for at the contract unit price per each for the items listed below, of the type specified in the plans, which price shall include all material, hardware, storage, and labor required for complete installation of the Luminaires, as shown on the contract plans and as specified herein.

- Pedestrian Luminaire, Install Only
- Roadway Luminaire, Install Only
- Aesthetic Light, Install Only (Type LC)
- Aesthetic Light, Install Only (Type LD)

C. Navigation Lighting.

This work will be paid for at the contract lump sum price for Navigation Lighting. Payment for Navigation Lighting includes all labor, equipment, and materials to furnish and install the permanent navigation lighting system for the approach bridges according to the specification. The cost for furnishing, installation, maintaining, and removal of the temporary navigation lighting system is also to be included in the pay item for Navigation Lighting.